

**CLAIMS**

1. An integrated circuit comprising:

a inverter controller being adapted to generate a plurality of signals to drive an inverter circuit; and comprising one or more input pins configured to receive two or more input signals, each said signal supporting an associated function of said controller.

2. An IC as claimed in claim 1, wherein said input pin configured to receive a first signal representing a dim voltage, said first signal having a first voltage range; and a second signal representing a voltage feedback signal, said second signal having a second voltage range.

3. An IC as claimed in claim 1, further comprising a multiplexer circuit to direct one of said input signals to a first circuit to support a first said function of said controller, and to direct another of said input signals to a second circuit to support a second said function of said controller.

4. An IC as claimed in claim 1, wherein one of said input signals is present in a first time period and another of said input signals is present in a second time period.

5. An integrated circuit, comprising a inverter controller comprising a multiplexer and a plurality of input pins; wherein at least one of said input pins configured to receive two or more input signals, each said signal being multiplexed to support an associated function of said controller.

1 6. An IC as claimed in claim 5, wherein said input pin configured to receive a first  
2 signal representing a dim voltage, said first signal having a first voltage range; and a  
3 second signal representing a voltage feedback signal, said second signal having a second  
4 voltage range.

5  
6 7. An IC as claimed in claim 5, wherein said multiplexer directs one of said input  
7 signals to a first circuit to support a first said function of said controller, and said  
8 multiplexer directs another of said input signals to a second circuit to support a second  
9 said function of said controller.

10  
11 8. An IC as claimed in claim 5, further comprising another input pin configured to  
12 receive two or more input signals, each said signal supporting an associated function of  
13 said controller; wherein one of said input signals is present in a first time period and  
14 another of said input signals is present in a second time period.

15  
16 9. An integrated circuit, comprising an inverter controller comprising an input pin  
17 configured to receive two or more input signals, each said signal supporting an associated  
18 function of said controller; wherein one of said input signals is present in a first time  
19 period and another of said input signals is present in a second time period.

20  
21 10. An IC as claimed in claim 1, wherein the input pin is configured to receive a first  
22 signal representing a current feedback signal, where the first signal is present in a first

1 time period; and a second signal representing a soft start signal, where the second signal  
2 is present in a second time period.

3  
4 11. An IC as claimed in claim 8, wherein the input pin is configured to receive a first  
5 signal representing a current feedback signal, where the first signal is present in a first  
6 time period; and a second signal representing a soft start signal, where the second signal  
7 is present in a second time period.

8  
9 12. An inverter controller IC for generating power to a load, comprising:  
10 an overvoltage protection circuit configured to receive a voltage feedback signal  
11 from the load and configured to generate a protection signal to discontinue power to the  
12 load;

13 a dimming circuit configured to receive a dimming signal and configured to  
14 generate a dimming signal to control the power delivered to the load;  
15 a current control circuit configured to receive a current feedback signal from the  
16 load and configured to generate an error signal; and  
17 an output circuit configured to receive said error signal and said dimming signal  
18 and configured to generate drive signals for driving said load;

19 wherein said IC further comprises a pin configured to receive said voltage  
20 feedback signal and said dimming signal and wherein said IC further comprises a  
21 multiplexer coupled to said pin and configured to direct said voltage feedback signal to  
22 said overvoltage protection circuit or said dimming signal to said dimming circuit, based  
23 on the value of said current feedback signal.

1 13. An inverter controller IC as claimed in claim 12, wherein said current control  
2 circuit comprising a first comparator configured to compare said current feedback signal  
3 to a load threshold signal indicative of a minimum current that should be present at the  
4 load, said comparator configured to generate a control signal for controlling the state of  
5 said multiplexer.

6  
7 14. An inverter controller IC, comprising:

8 an overvoltage protection circuit configured to receive a voltage feedback signal  
9 from the load and configured to generate a protection signal to discontinue power to the  
10 load;

11 a dimming circuit configured to receive a dimming signal and configured to  
12 generate a dimming signal to control the power delivered to the load;

13 a current control circuit configured to receive a current feedback signal from the  
14 load and configured to generate an error signal; and

15 an output circuit configured to receive said error signal and said dimming signal  
16 and configured to generate drive signals for driving said load;

17 wherein said IC further comprises a pin configured to receive said error signal,  
18 said dimming signal, and/or said adapted to generate the DC signal CMP 52 based on the  
19 values of the error signal generated by the current control circuit 300 and/or the dimming  
20 signal generated by the dimming circuit 200. PIN 4 is multifunctional since it is also  
21 adapted to generate a soft start signal 52 based on the value of the error signal generated  
22 by the current control circuit 300.